

IN THE CLAIMS:

Please amend the claims as follows.

1. (Currently Amended) A method of transmitting data over a network having a plurality of nodes and links when a link has failed, the method comprising:

receiving a data packet at a first node having a failed link, the data packet scheduled to use the failed link;

converting the data packet to a failover data packet at the first node by marking the data packet as a failover packet and recomputing a CRC value;

routing the data packet to a failover storage area;

~~if needed,~~ determining an alternative link for the data packet and routing the data packet to a transmitter associated with the alternative link; and

transmitting the data packet to a receiver for the alternative link in a second node, thereby allowing the data packet to reach an intended destination by effecting the first node at a hardware level and without software intervention.

2. (Original) A method as recited in claim 1 further comprising:

detecting a specific link failure at the first node; and

switching the first node to failover mode for the specific link.

3. (Original) A method as recited in claim 2 further comprising:

notifying a third node at the far-end of the specific link of the failure; and

switching the third node to failover node for the specific link.

4. (Cancelled)

5. (Currently Amended) A method as recited in claim [[4]] 1 further comprising examining one or more failover route tables using a destination node identifier as an index and retrieving the alternative link.

6. (Original) A method as recited in claim 5 further comprising querying a primary route table using the destination node identifier to retrieve a primary link.

7. (Original) A method as recited in claim 6 further comprising querying a secondary route table to retrieve the alternative link if the primary link is a failed link.

8-15. (Cancelled)

16. (Original) A node in a communication network comprising:
a receiver having a failover buffer for routing a failover data packet;
a first-in, first-out (FIFO) data storage area for storing the failover data packet and routing the data packet to a receiver or a transmitter; and
a node/link routing table having at least two rows, a row corresponding to a neighboring node, and one or more interconnect links, wherein a failure in a link connected to the node will not disrupt the flow of a data packet scheduled to use the link.

17. (Original) A node as recited in claim 16 wherein the receiver further comprises a multiplexer for routing the failover data packet to the failover buffer.

18. (Original) A node as recited in claim 16 wherein the FIFO data storage area further comprises a first FIFO data stack, a second FIFO data stack, and a plurality of multiplexers.

19. (Original) A node as recited in claim 18 wherein the first FIFO data stack outputs data to a transmitter and accepts input data from a receiver and a transmitter and the second FIFO data stack outputs data to a transmitter and a receiver and accepts input data from a receiver.

20. (Original) A node as recited in claim 16 wherein the node/link routing table further comprises a first column for storing a node identifier and a second column for storing a

transmitter identifier.

21. (Original) A node as recited in claim 16 further comprising a transmitter having an arbitrator for determining whether a normal data packet or a failover data packet will be transmitted on a link.

22. (Original) A node as recited in claim 21 wherein the arbitrator is a multiplexer and selection control logic.

23. (New) A method of transmitting data over a network having a plurality of nodes and links when a link has failed, the method comprising:

receiving a data packet at a first node having a failed link, the data packet scheduled to use the failed link;

storing the data packet in a failover buffer when received at the first node and before routing the data packet to a failover storage area;

routing the data packet to the failover storage area;

determining an alternative link for the data packet and routing the data packet to a transmitter associated with the alternative link; and

transmitting the data packet to a receiver for the alternative link in a second node, thereby allowing the data packet to reach an intended destination by effecting the first node at a hardware level and without software intervention.

24. (New) A method of transmitting data over a network having a plurality of nodes and links when a link has failed, the method comprising:

receiving a data packet at a first node having a failed link, the data packet scheduled to use the failed link;

routing the data packet to a failover storage area, wherein said routing the data packet to the failover storage area further comprises routing the data packet to a first data stack or a second data stack;

FIFO FIFO

determining an alternative link for the data packet and routing the data packet to a

transmitter associated with the alternative link; and

transmitting the data packet to a receiver for the alternative link in a second node, thereby allowing the data packet to reach an intended destination by effecting the first node at a hardware level and without software intervention.

25. (New) A method as recited in claim 24 further comprising determining whether the data packet is routed to the first data stack or to the second data stack.

FIFO

FIFO

26. (New) A method as recited in claim 24 wherein the first data stack receives data packets from receivers and transmitters and the second data stack receives data packets from receivers only.

27. (New) A method as recited in claim 24 further comprising forwarding the data packet from the failover storage area to the selected transmitter for the alternative link.

28. (New) A method as recited in claim 24 further comprising sending out the data packet from the selected transmitter without storing the data packet in a buffer for the selected transmitter.

29. (New) A method of transmitting data over a network having a plurality of nodes and links when a link has failed, the method comprising:

receiving a data packet at a first node having a failed link, the data packet scheduled to use the failed link;

routing the data packet to a failover storage area;

determining an alternative link for the data packet and routing the data packet to a transmitter associated with the alternative link;

transmitting the data packet to a receiver for the alternative link in a second node, thereby allowing the data packet to reach an intended destination by effecting the first node at a hardware level and without software intervention; and

sharing only the alternative link at the first node in order to transmit the data packet to the second node.

30. (New) A method of transmitting data over a network having a plurality of nodes and links when a link has failed, the method comprising:

receiving a data packet at a first node having a failed link, the data packet scheduled to use the failed link;

routing the data packet to a failover storage area;

determining an alternative link for the data packet and routing the data packet to a transmitter associated with the alternative link;

transmitting the data packet to a receiver for the alternative link in a second node, thereby allowing the data packet to reach an intended destination by effecting the first node at a hardware level and without software intervention; and

determining whether the second node is in failover mode after the second node receives the data packet from the first node on the alternative link.

31. (New) A method of transmitting data over a network having a plurality of nodes and links when a link has failed, the method comprising:

detecting a failed link coupled to a first node, wherein the first node comprises a data packet scheduled to be transmitted via the failed link;

in response to detecting the failed link, converting the data packet to a failover data packet at the first node by marking the data packet as a failover packet and recomputing a CRC value;

routing the data packet to a failover storage area;

determining an alternative link for the data packet and routing the data packet to a transmitter associated with the alternative link; and

transmitting the data packet to a receiver in a second node coupled to the alternative link.

32. (New) A system having a plurality of nodes and links, wherein the plurality of nodes are configured to communicate with one another via the plurality of links, the system comprising:

a first node coupled to a plurality of links, wherein the first node is configured to detect a failure in a first link, wherein the first node comprises:

a receiver configured to receive a data packet scheduled to be transmitted via the first link, wherein the data packet is converted to a failover data packet in response to detecting the failure in the first link by marking the data packet as a failover packet and recomputing a CRC value,

one or more failover route tables for determining an alternative link to transmit the data packet by using a destination node identifier as an index, and

a failover storage area for storing the data packet and routing the data packet to a transmitter associated with the alternative link; and

a second node coupled to the alternative link and configured to receive the data packet from the transmitter.
